

Several species of microlepidoptera which are still undetermined are very abundant on *Betula alba*, about Cambridge, Mass. Among them may be mentioned a case-bearer (? *Coleophora*), a species having a ridged cocoon (? *Bucculatrix*), a species the larva of which has a case made of successive rings of leaf-epidermis arranged in the form of a cornucopia, and a large leaf-miner belonging to some genus allied to *Lithocolletis*; the larvae of the last two species are found very late in the season, just before the leaves are destroyed by the frost.

Oporophtera boreata Hüb. (Samml. europ. schmett., Spanner, 1796, fig. 413-414). Kaltenbach (Pflanzenfeinde, 1872, p. 599) gives *Betula* and *Fagus* as food-plants of this species. Packard (Mon. geom. moths, 1876, p. 199) quotes Newman's description of the larva of this species.

Rheumaptera hastata Linn. (Syst. nat.,

1758. ed. 10, p. 527). Schmiedlein (Naturges. deutsch. schmett., 1805, p. 101-102) describes the larvae of this species, which he states live socially upon birch between the leaves which they spin together. Packard (Mon. geom. moths, 1876, p. 165-166) quotes Newman's description of the larva, in which it is stated to feed upon *Betula alba* and *Myrica gale*. Kaltenbach (Pflanzenfeinde, 1872, p. 413 and 599) compiles authorities for the following additional food-plants of this species: *Rhododendron hirsutum*, *Salix*, and *Vaccinium uliginosum*. A larva of this species, taken on *Betula alba*, at Belmont, Mass., 4 Aug. 1883, pupated 14 Aug., and appeared as imago 17 May 1884. This is one of the species of lepidoptera seen in swarms in parts of the White Mts., N. H., where specimens were taken from 8-14 July 1874 in the greatest abundance.

(To be continued.)

SYSTEMATIC POSITION OF THE GENUS *APIOCERA*.

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In the Berliner entom. zeitschrift for 1883, p. 287-294, Baron Osten Sacken gives his reasons for placing the genus *Apiocera* among the *asilidae*. I am strongly of the opinion, however, that its proper place is among the *thereridae*—an opinion which the following facts would appear to fully justify.

In the Monographs of the diptera of North America, part 1, p. 22 and p. 24, Dr. Loew defines the families *asilidae* and *thereridae* in the following words:

“*Asilidae*.—Three basal cells much prolonged. Third longitudinal vein of the wings fureate, the two intercalary veins always present. Third joint of the

antennae simple; under lip forming a horny sheath; empodium similar to a horny bristle.”

“*Thereridae*.—Three basal cells much prolonged: the two intercalary veins present; third longitudinal vein furcate. Antennae with a terminal style of variable form, sometimes wanting. No empodium. Under lip fleshy.”

In many of the larger *thereridae* the empodium, or third pulvillus, is present in the form of a slender bristle. The only character of importance, therefore, whereby either of these families may be distinguished from the other is the structure of the under lip or proboscis, which

is horny in the *asilidae* and fleshy in the *therevidae*; in other words, in the *therevidae* the proboscis terminates in two fleshy lips, while in the *asilidae* it is destitute of lips.

The genus *Apiocera* possesses all of the characters which Dr. Loew assigns to the *asilidae* except that the proboscis ends in two fleshy lips; and as this is the only character of importance wherein the *therevidae* differ from the *asilidae*, it naturally follows that this genus must be referred to the *therevidae*.

The characters which the Baron found to be common to *Apiocera* and the section *asilina* (*l. c.*, p. 289-291) also exist in the larger *therevidae*, with the exception of the closed marginal cell; moreover, the *therevidae* agree with *Apiocera* in several of the characters wherein this genus differs from the *asilina*. Thus the majority of the *therevidae* have a very short antennal style, as in *Apiocera*; whereas, in the *asilina* the style is usually long and bristle-like. In the *therevidae*, as in *Apiocera*, the face is very oblique, thus differing widely from the perpendicular or more or less convex face of the *asilina*, with its characteristic mystax, which is wanting in the *therevidae* and *Apiocera*. Moreover, the legs of the *therevidae* and *Apiocera* are weaker than in the *asilina*, and the tarsal joints are long and slender, instead of being short and robust. So that, if *Apiocera* is closely related to the *asilina*, it is still more closely related to the *therevidae*.

I admit that some species of *Apiocera* bear a very close resemblance to several species of *Erae*; however, our classifica-

tion is not based upon a superficial resemblance, but upon the presence or absence of certain well-marked characters. Were we justified in placing the genus *Apiocera* in the family *asilidae* it would become necessary to remove all of the *therevidae* to this family; but such a course is not at all desirable, as the family *asilidae* is already a very extensive one, and the presence or absence of lips at the tip of the proboscis is a character of very easy application.

There is not an entomologist living whose opinion on any subject relating to the diptera has greater weight than that of the Baron Osten Sacken; and I would not have ventured an opinion contrary to one expressed by the Baron were I not convinced beyond a doubt of the correctness of my own views. From the few words which he gives concerning the relationship of *Apiocera* to the *therevidae* it is quite evident that he had not compared them with the same care that he compared this genus with the *asilina*.

The genus *Apiocera* is represented in my collection by twenty-two specimens, which were collected in this state (California). Some of the males agree in all essential characters with Osten Sacken's description of his *A. harnswax*, but the others differ to such a degree from these, and also from each other (there being scarcely any two specimens marked exactly alike) that I am at a loss to know whether to regard them as belonging to several distinct species, or as merely varieties of one very variable species; but I incline to the latter view of the case.